XSAT-7080 X-Band Transceivers

Transceivers

5 to 25 W

50 W

100 W

Introduction

Comtech EF Data developed the XSAT-7080 X-Band Transceiver utilizing a talented team of RF engineers with many years of experience in designing and manufacturing satellite transceivers and other RF products. The XSAT-7080 family of 5 to 25 W, 50 W, and 100 W units is designed to provide the user with superior performance, long-term reliability and ease of installation with a very price competitive product. The XSAT-7080 is the perfect choice for your VSAT application for TDMA, DAMA, and SCPC/MCPC sites requiring higher power.

Full Rated Power

The XSAT-7080 delivers the full rated power, or more, measured at the 1 dB compression point and at the output flange. The user realizes the useable output power that is available and receives full value for the investment.

Phase Noise

The dual synthesizers in the XSAT-7080 deliver superior phase noise performance, exceeding Intelsat specifications by a very comfortable margin. The user receives the benefits of spectral purity and the ability to go into multi-carrier environments with less concern.

Third Order Intercept (TOI)

The design of the XSAT-7080 gives the user a high TOI that allows multi-carrier applications without the concerns normally associated with low power environments. The XSAT-7080 delivers performance usually found only in SSPA systems.

Small, Compact Design

The XSAT-7080 offers a 5 W, 10 W, 25 W, 50 W, and 100 Wt transceivers. This design allows quick, easy installation for these higher-powered transceivers. With the use of the EDMAC features of the companion CDM family of modems, even installation can be made without the requirement for expensive, heavy test equipment.

Full Monitor and Control (M&C)

Designed into the XSAT-7080 are a variety of methods to monitor and control this device. The XSAT-7080 offers full Monitor and Control from a small, convenient Hand-Held Terminal or easy access via RS-232 or RS-485 connections. Full remote M&C can be achieved through the companion CDM Modem family or the PC Windows-based EDMAC proprietary monitor and control software.

Redundancy

The XSAT-7080 is available in a 1:1 redundant configuration.

Specifications

Transmit

Frequency RF	7900 to 8400 MHz
Frequency IF	70 MHz ± 18 MHz 140 MHz ± 36 MHz (Optional)
Output Power, P_{1dB}	
5 W	37 dBm
10 W	40 dBm
25 W	44 dBm
50 W	47 dBm
100 W	50 dBm
Gain	
5 W	65 dB
10 W	68 dB
25 W	71 dB
50 W	74 dB
100 W	77 dB
Gain Flatness	± 0.75 dB full RF band ± 0.75 dB per 36 MHz
Gain Stability	± 0.25 dB at constant C ± 1.00 dB from -40º to +55ºC (-40º to 131ºF)
Carrier Mute	-70 dBc
Inter-Modulation	-33 dBc typical for two carriers each at -6 dB OPBO from rated power
Second Harmonic	-55 dBc
Spurious	
AC line harmonics	-45 dBc
Carrier related, <500 kHz	-60 dBc
All other In-band	-65 dBc
AM to PM Conversion	3.0 Degrees at 6 dB OPBO from rated power
RF Output VSWR	1.25:1
RF Output Connector	
Type N Female	5 W, 10 W and 25 W
CPR-112	50 W and 100 W

Receive

Frequency RF	7250 to 7750 MHz
Frequency IF	70 MHz ± 18 MHz 140 MHz ± 36 MHz (Optional)
Gain, without LNA	45 dB
Gain Flatness, without LNA	± 0.75 dB full RF band ± 0.75 dB per 36 MHz
Gain Stability, without LNA	± 0.25 dB constant temperature ± 1.00 dB -40º to +55ºC (-40º to 131ºF)
Output Power, P1dB	+13 dBm
Two Tone Inter-Modulation	-50 dBc for two tones at 0 dBm each, 1 MHz apart
Image Rejection	-60 dBc
RF Input VSWR	1.25:1
RF Input Connector	Type N Female
IF Output Impedance	50 Ω
IF Output VSWR	1.25:1
IF Output Connector	Type N Female

Common

Conversion	Dual, no spectral inversion
Frequency Step Size	1.0 and 2.5 MHz automatic
Frequency Stability	1 x 10^{-9}/day 1 x 10^{-7}/year 40º to +55º C 1 x 10^{-8}/Temperature
Attenuation Steps	TX: 0 to 25 dB in 0.25 dB steps RX: 0 to 20 dB in 0.25 dB steps
Phase Noise	
100 Hz	-66 dBc/Hz
1 kHz	-76 dBc/Hz
10 kHz	-86 dBc/Hz
100 kHz	-96 dBc/Hz
Group Delay	
Linear	0.1 ns/MHz
Parabolic	0.02 ns/MHz^2
Ripple	1 ns p-p

Monitor & Control

Methods	Both RS-485 and RS-232 Serial Interface Handheld controller, optional
Commands	Set TX frequency Set RX frequency Set TX attenuation Set RX attenuation Report TX output power Mute TX Report internal temperature Report power supply voltages Set time Set date
Faults	Up converter functions Down converter functions Up converter synthesizers Down converter synthesizers Internal reference oscillator LNA current fault Over temperature condition

Environmental

Operating Temperature	-40º to +55ºC (-40º to 131ºF) Operating
Storage Temperature	-50º to +75ºC (-58º to 167ºF) Storage
Altitude	15,000 ft, mean sea level
Humidity	0 to 100 Percent, Relative
Prime Power	90 to 260 VAC Standard 47 to 63 Hz Standard 48 VDC Optional
Dimensions	(height x width x depth)
5W to 25 W	11” x 8” x 11” (28 x 20 x 28 cm)
50 W	9.75” x 10” x 23” (24.77 x 25.4 x 58.42 cm)
100 W	10.60” x 12.5” x 26” (26.92 x 31.75 x 66.04 cm)
Weight	
5 W to 25 W	36 lbs (16 kg)
50 W	65 lbs (29 kg)
100 W	80 lbs (40 kg)
Low Noise Amplifier	Customer defined
RF Power	5 W, 10 W, 25 W, 50 W, 100 W
AC Power	165 W, 220 W, 275 W, 450 W, 825 W

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